

Abstract Paper

In an automatic transmission provided with a plurality of torque transmission means between the input shaft and output shaft of a gear-type shifting means, in which said torque transmission means for at least one shifting stage 5 is a multi-disc clutch and the torque transmission means for all other shifting stages are claw clutches and said multi-disc clutch is controlled to accomplish smooth 10 shifting from one shifting stage to another shifting stage, the torque capacity of the multi-disc clutch is increased above the maximum output shaft torque of the transmission and the torque of the multi-disc clutch is generated so that the output shaft torque does not change significantly 15 during shifting.

The present invention solves the problems: that if the torque capacity of the multi-disc clutch is small, when a shift is made at a high output shaft torque, the difference 20 between this torque and the torque that the multi-disc clutch can generate will be transmitted to the output shaft as a change in torque, thus making the passengers (including the driver) feel uncomfortable; and that in case of trouble with the driving source of the actuators which drive the automatic transmission, if the engine torque is 25 not transmitted to the output shaft properly, this can

cause the engine to stall or the engine speed to increase abruptly, thus resulting in the vehicle not operating properly.